

LISTING OF THE CLAIMS

1. -65. (Canceled)

66. (New) A system for collecting fluorescent light emitted from a biological sample, the system comprising:

a plurality of sample holders; and

an aspherical optical element, the aspherical optical element comprising:

a flat surface facing the plurality of sample holders;

a curved surface facing away from the plurality of sample holders; and

a radius of curvature,

wherein the sample holders are positioned at an object plane of the aspherical optical element, wherein the object plane is within the radius of curvature.

67. (New) The system of claim 66, further comprising a collection lens positioned to receive and substantially collimate light from the curved surface of the aspherical optical element.

68. (New) The system of claim 67, further comprising a transmission grating configured to spectrally disperse the substantially collimated light from the collection lens.

69. (New) The system of claim 68, further comprising a reimaging lens configured to receive the spectrally disperse light from the transmission grating and direct the spectrally dispersed light onto a light detection device.

70. (New) The system of claim 69, wherein the light detection device is a CCD.

71. (New) The system of claim 69, further comprising an aperture positioned between the collection lens and reimaging lens.

72. (New) The system of claim 71, wherein the aperture is configured to provide uniform light throughput.

73. (New) The system of claim 72, wherein the aperture is in the shape of a cat's eye.

74. (New) A system for collecting fluorescent light emitted from a biological sample, the system comprising:

a plurality of sample holders; and

a non-hemispherical optical element, the non-hemispherical optical element comprising:

a flat surface facing the plurality of sample holders;

a curved surface facing away from the plurality of sample holders; and

a radius of curvature,

wherein the sample holders are positioned at an object plane of the non-hemispherical optical element, wherein the object plane is within the radius of curvature.

75. (New) The system of claim 74, further comprising a collection lens positioned to receive and substantially collimate light from the curved surface of the non-hemispherical optical element.

76. (New) The system of claim 75, further comprising a transmission grating configured to spectrally disperse the substantially collimated light from the collection lens.

77. (New) The system of claim 76, further comprising a reimaging lens configured to receive the spectrally disperse light from the transmission grating and direct the spectrally dispersed light onto a light detection device.

78. (New) The system of claim 77, wherein the light detection device is a CCD.
79. (New) The system of claim 77, further comprising an aperture positioned between the collection lens and reimaging lens.
80. (New) The system of claim 79, wherein the aperture is configured to provide uniform light throughput.
81. (New) The system of claim 80, wherein the aperture is in the shape of a cat's eye.